Spiral Wound Gasket

VALQUATIGHT Gasket

VALQUA No. 8590 Series / 8590TN / 6590 Series / 6590VC Series / 7590 Series / M590L Series / M590 Series

Spiral Wound Gaskets use inorganic paper, VALQUAFOIL (expanded graphite) and VALFLON (PTFE) tapes as filler materials, and they exhibit good elasticity by means of a V-shaped hoop. These gaskets are suitable at joints for pipe flanges, heat exchangers, towers & tanks, valve bonnets and other equipment that handle high temperature & high pressure fluids used in various industries including oil refining, chemical, power, gas and shipbuilding.

Name	Filler material	Basic type	With outer ring	With innerr ring	With inner & outer ring
CLEANTIGHT	Inorganic paper	No.8590	No.8591	No.8592	No.8596
BLACKTIGHT	VALQUAFOIL tape	No.6590	No.6591 (1)	No.6592	No.6596
WHITETIGHT	VALFLON tape	No.7590	No.7591 (1)	No.7592	No.7596
Lined Mica Filler Spiral Wound Gaskets	Mica + VALQUAFOIL tape	No.M590L	No.M591L	No.M592L	No.M596L
Mica Filler Spiral Wound Gaskets	Mica	No.M590	No.M591	No.M592	No.M596

Note (1) Since No.6591 and No.7591 may cause radial buckling in the inner diameter side depending on service conditions, employ gaskets with inner & outer rings as much as possible.

CLEANTIGHT

VALQUA No. 8590 Series

Features

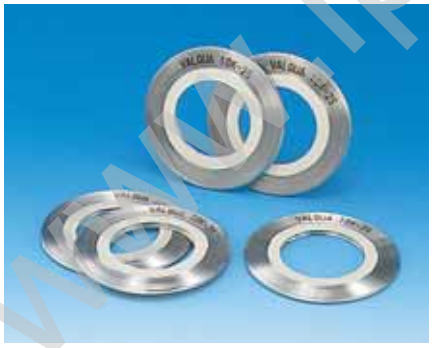
This is a Spiral Wound Gasket using inorganic paper. The product is more economical compared to other products in which VALQUAFOIL or VALFLON is used.

- ▶ It has high heat resistance.
- ▶ Products that comply with nuclear power specifications are also available.

Applications

The product is suited for general-purpose products of utility lines that handle high temperature and high-pressure fluids.

NONASUPER



VALQUA No. 8590TN

Features

NONASUPER is made by winding hoops (SUS304) around the periphery of 3.2mm thick basic Spiral Wound Gaskets.
The product can be used with the same level of tightening force as that of a Compressed Non-asbestos Fiber Sheet.

- ▶ The maximum service temperature is 450°C.

Applications

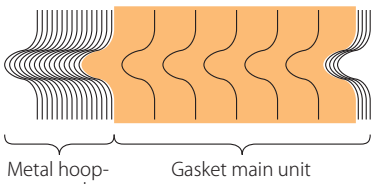
The product is suited for utility lines that handle high temperature fluids.

Dimensions

JIS 10K, JPI Class 150, Max 200A
〈Thickness〉 3.2mm

Composition

Hoop : SUS304 Filler material: Inorganic paper



■ Dimensions ■

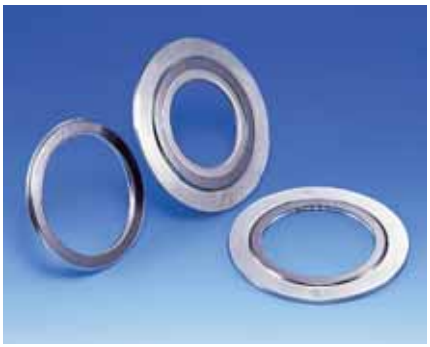
VALQUA No.	Thickness (mm)	Pressure rating
8590TN	3.2	JIS 10K
		JPI Class 150

■ Design data ■

VALQUA No.	Recommended tightening stress (1) (MPa)
8590TN	30.0

Note (1) The tightening stress corresponds to the projected area of the gasket main body only, and does not include the metal strip lap-wound section.

BLACKTIGHT / BLACKTIGHT for Extremely Low Temperature



▲6590 Series

VALQUA No. 6590 Series

Features

This is a Spiral Wound Gasket using VALQUAFOIL (expanded graphite) as filler material.

- ▶Excellent air tightness that significantly improves sealing performance for gas and vacuums.
- ▶Responds well to heat and pressure cycles, which reduces the frequency of retightening.
- ▶They also have excellent radiation resistance (products complying with nuclear power specifications are available).
- ▶They exhibit excellent sealing properties at very low temperatures. (No.6596VC type has been developed for cryogenic use. Further information is available upon request.)

Applications

These gaskets are particularly suited for handling high temperatures and high-pressure steam, heat transfer oil (except HTS). They are also suitable for extremely low temperature fluids.

VALQUA No. 6590VC Series

Features

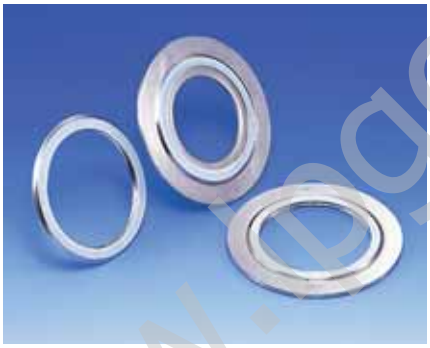
This is a gasket for extremely low temperature application, and it has high sealability even at a low gasket stress by making the 6590 series more flexible.

- ▶This product has excellent sealability under extremely low temperature conditions such as LNG.
- ▶A process that can seal even under low gasket stress is used.

Applications

It is suitable for applications with extremely low temperature fluids such as LNG, liquid nitrogen and liquid hydrogen or those requiring a sealing property at low tightening stress.

WHITETIGHT



VALQUA No. 7590 Series

Features

Using VALFLON (PTFE) tape having excellent chemicals resistance as filler material, these Spiral Wound Gaskets are more effective than other filler materials in sealing corrosive fluids and air tightness, thus are suitable as gas and vacuum seals.

- ▶Together with excellent corrosion resistance and a suitable selection of hoop materials, they can be applied to almost all fields of fluid applications.
- ▶Excellent air tightness significantly improves sealing performance against gas and vacuums.

Applications

Particularly suitable as gaskets for corrosive fluid seals and oxygen as well as for gas and vacuum seals.

Lined Mica Filler Spiral Wound Gaskets / Mica Filler Spiral Wound Gaskets

▲M590 Series

VALQUA No. M590L Series

Features

This is a Spiral Wound Gasket made of expanded graphite filler and cloth-less mica filler made by a special manufacturing process, and it has excellent sealability and significantly improved heat resistance due to an anti-oxidation effect on expanded graphite by the mica filler.

- ▶ Maximum service temperature is 750°C.

Applications

For super-high temperature

VALQUA No. M590 Series

Features

This is a Spiral Wound Gasket using a clothless mica filler. The product minimizes strength deterioration due to heating.

Applications

For HTS (Oxidizer: a mixture of sodium nitrate, potassium nitrate and sodium nitrate) used as a high-temperature heat transfer oil

Ordering Information

Please specify the following to place an order for these products:

1. Product number	4. Presence of special specification	7. Quantity
2. Material	5. Nominal pressure, Nominal diameter	
3. Shape	6. Operating temperature, Fluid	

VALQUA No.					
Classification	Types	BLACKTIGHT	WHITETIGHT	CLEANTIGHT	Mica filler products
	Filler material	VALQUAFOIL tape	VALFLON tape	Non-Asbestos	Mica tape
Basic type		6590	7590	8590	M590
With outer ring		6591	7591	8591	M591
With inner ring		6592	7592	8592	M592
With inner & outer ring		6596	7596	8596	M596

Thickness (1)	
Nominal thickness	Code
1.6 mm	P
3.2 mm	T
4.5 mm	V
4.8 mm	M
6.4 mm	W
Others	X

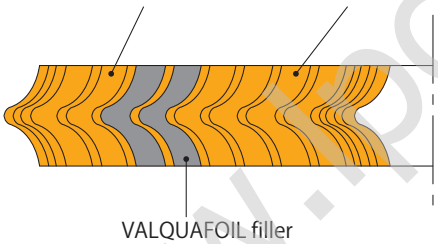
Note (1) Mica filler products are available in 4.5mm, 4.8mm and 6.4mm.

Supplementary information	
Content	Code
Graphite tape line added	L (2)
Graphite tape line added with special requirements	S (2)
Cryogenic Temperature service	C (3)
Others	—

Notes (2) Available in CLEANTIGHT and Mica filler products.
(3) Applicable only to BLACKTIGHT.

▼Spiral wound gaskets with lines

Non-asbestos inorganic filler or Mica filler



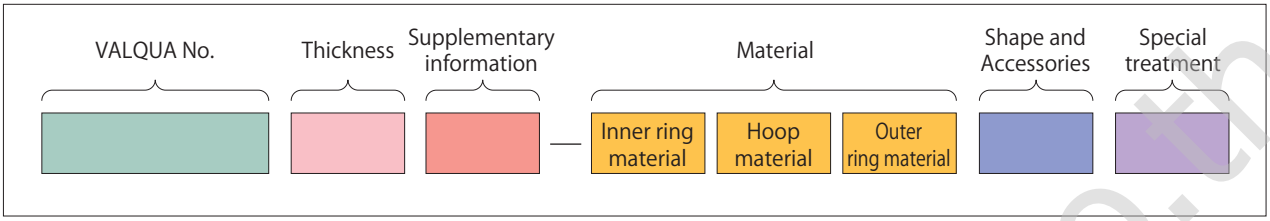
By winding VALQUAFOIL filler in the middle of inorganic fillers, these spiral Wound Gaskets have enhanced gas sealability with increased compatibility with flanges. Further, the inner filler and outer filler shuts off the oxygen supply, inhibiting the oxidation of VALQUAFOIL under oxidizing conditions and makes it possible to be used in high temperatures.
Available in CLEANTIGHT or Mica filler products.

▼Need for an Inner Ring

An inner ring has the function of maintaining the tightening force by preventing the gasket's main body from deforming toward the internal diameter. If installing into a non-groove flange that has no restraint on the internal diameter side, please use a product with an inner ring under the following conditions.

Classification \ Type	No-inner ring type	With inner ring type
Rating	Class 600, 40K or lower	Class 900, 63K or higher vacuum
Dimensions	24B or lower	26B or higher
Filler material		VALFLON (PTFE), VALQUAFOIL (expanded graphite)
Fluid		Oxygen, toxic fluid, other highly hazardous fluid

Please refer to the following guide if necessary:



Material					
Inner ring material		Hoop material		Outer ring material	
Content	Code	Content	Code	Content	Code
SUS304	E	SUS304	E	SUS304	E
SUS304L	L	SUS304L	L	SUS304L	L
SUS310S	O	SUS310S	O	SUS310S	O
SUS316	G	SUS316	G	SUS316	G
SUS316L	H	SUS316L	H	SUS316L	H
SUS317L	Q	SUS317L	Q	SUS317L	Q
SUS321	J	SUS321	J	SUS321	J
SUS347	K	SUS347	K	SUS347	K
SUS410	R	SUS410	R	SUS410	R
SUS430	U	SUS430	U	SUS430	U
Monel 400	M	Monel 400	M	Monel 400	M
Nickel 201	N	Nickel 201	N	Nickel 201	N
Titanium TP340	T	Titanium TR270	T	Titanium TP340	T
Incoloy 800	W	Incoloy 800	W	Incoloy 800	W
Inconel 600	Y	Inconel 600	Y	Inconel 600	Y
Aluminum	A	Aluminum	A	Aluminum	A
Low CS	S	Hastelloy C276	V	Low CS	S
Hastelloy C276	V	Copper	C	Hastelloy C276	V
Others	X	Others	X	Others	X
Not applicable	Z			Not applicable	Z

Shape and Accessories	
Content	Code
Basic model	Z
Basic model + Handle	B
Basic model + Rib(s) heat exchanger application	Y
Basic model + Hanger	H
Irregular shape without accessories	E
Other special shapes	X

Special treatment	
Content	Code
Without Special treatment	Z
Nuclear application	E
Pitting corrosionpreventive finish	C
Degreased	B
Other special treatment (Also includes combinations for the above special treatments)	X

▼ Combination of special treatments and each product

VALQUA No.	Names	Nuclear application (Code E)	Pitting corrosion-preventive finish (Code C)	Degreased (Code B)
6590 Series	BLACKTIGHT	○	Standard	○
7590 Series	WHITETIGHT	×	×	○
8590 Series	CLEANTIGHT	○	○	○
M590 Series	Mica filler products	×	○	○

○ Available
× Unavailable

Design data

■ Allowable ranges ■

VALQUA No.	Temperature (℃)	Pressure (MPa)
8590 Series	−200～500 (1)	30.0
6590 Series	−270～450	
7590 Series	−260～300	20.0
M590L Series	−200～750	30.0
M590 Series		

Note (1) Temperatures of 500 to 600℃ may be allowed depending on service conditions. In the case of using No.8590 Series for temperatures exceeding 500℃ , the following should be observed:
①Adequate tightening shall be performed initially. Further information is available upon request.
②Their sealing property is equal to that of spiral wound gaskets that use asbestos fillers. For applications requiring higher airtightness, No.8590L Series are recommended.

Remarks 1.Temperature and pressure show individual service limits.
2.The above temperature ranges vary depending on the material used for the hoops and the inner & centerring rings.

■ Dimensions ■

▼ For standard pipe flanges

For JIS pipe flanges = 10K, 16K, 20K, 30K, 40K, 63K
For JPI and ANSI pipe flanges
= Class150, 300, 400, 600, 900, 1500, 2500
Gaskets complying with other standards such as ASME and MSS are also available.

▼ For non-standard pipe flanges

VALQUA No.	Gasket Thickness (mm)	Manufacturing Ranges(mm)of the Main Part Internal Diameter
8590 Series **6590 Series** **7590 Series**	6.4mm (W)	300～3400 (1)
	4.5mm (V)	10～3000
	3.2mm (T)	10～1500
	1.6mm (P) (2)	10～150
M590L Series	6.4mm (W)	300～2500
M590 Series	4.5mm (V)	10～2500

Notes (1) The outer diameter of the outer ring can be up to 3500.
(2) The products with a gasket thickness of 1.6mm can be made only if it is the basic type and its hoop is made of SUS316.

Remarks 1.( ) indicates thickness classifications.
2.The manufacturing ranges are round type gaskets.

■ Design Criteria ■

Spiral Wound Gaskets have m and y values that are the same as those defined in Appendix G to JIS B 8265.

VALQUA No.	Gasket factor"m"	Minimum design seating stress " y " (N/mm²)	Recommended tightening stress (MPa)(1)	
			Liquid	Gas
8590 Series	3.0	68.9	35.0	70.0
6590 Series				50.0
7590 Series				35.0
M590 Series				70.0

Note (1) The recommended tightening stress is the pressures required under standard conditions without consideration to the endforce due to internal fluid. It is stress on the contact area of the gasket.

Remark Separate consultation is required if flange deformation is anticipated for large diameter gaskets.

■ Allowable ranges per fluid ■